Claims:

1. A compostable and/or degradable polymer composition, comprising:

polymer (A) which is a polyesteramide copolymer;

polymer (B) which is at least one polymer selected from the group consisting of polyethylenevinyl alcohol, polyvinyl alcohol, polyester, starch, starch derivative, cellulose, polyethylene glycol, chitin, amylose, amylopectin, starch derivatized with ethyleneimine, cellulose derivatized with ethyleneimine, polysaccharides derivatized with ethyleneimine, lignin derivatized with ethyleneimine, farinaceous materials derivatized with ethyleneimine and mixtures thereof;

component (C) which is a plasticizer; and

component (D) which is a crosslinking agent;

wherein the polymer composition comprises 0 to 60 wt% of polymer (B), 0 to 25 wt% of component (C), and 0 to 5 wt% of component (D);

wherein all wt% values are based upon the total weight of the polymer composition; and

with the proviso that the polymer composition must contain at least one of polymer (B) and component (D).

2. The compostable and/or degradable polymer composition according to claim 1, wherein the amide content is 80 to 20 wt% of the polyesteramide copolymer.

3. The compostable and/or degradable polymer composition according to claim 1, wherein the ester content is 20 to 80 wt% of the polyesteramide copolymer.

4. The compostable and/or degradable polymer composition according to claim 1, wherein polymer (A) is prepared from at least one of the following sets of reactants:

i) cyclic amide, dicarboxylic acid or ester and aliphatic diol;

ii) aliphatic polyamide and a cyclic ester, a diol or both;

iii) aliphatic diamine, dicarboxylic acid or ester and aliphatic diol;

iv) cyclic amide, dicarboxylic acid or ester, tricarboylic acid or ester, and aliphatic diol;

v) cyclic amide and cyclic ester;

vi) aminocarboxylic acid, dicarboxylic acid or ester and aliphatic diol;

vii) aliphatic diamine and/or triamine, aliphatic diol, dicarboxylic acid or ester and cyclic amide;

viii) aliphatic polyamide and polyester;

ix) polymerized vegetable oil and polyester, aliphatic diol or both;

x) aliphatic diamine and aliphatic diol;

xi) cyclic amide, aminocarboxylic acid, and hydroxycarboxylic acid;

xii) cyclic amide and hydroxycarboxylic acid;

xiii) aliphatic polyamide and hydroxycarboxylic acid;

xiv) cyclic amide, cyclic ester, dicarboxylic acid or ester and aliphatic diol;

xv) a triol/diol/aliphatic dicarboxylic acid crosspolymer and a polyamide; and

xvi) triol, diol, aliphatic dicarboxylic acid and a cyclic amide.

5. The compostable and/or degradable polymer composition according to claim 4, wherein polymer (A) is prepared from caprolactam and caprolactone.

6. The compostable and/or degradable polymer composition according to claim 4, wherein polymer (A) is prepared from caprolactam and lactic acid.

7. The compostable and/or degradable polymer composition according to claim 4, wherein polymer (A) is prepared from caprolactam, adipic acid, and 1,4-butanediol.

8. The compostable and/or degradable polymer composition according to claim 4, wherein polymer (A) is prepared from hexamethylenediamine, adipic acid, and 1,4-butanediol.

9. The compostable and/or degradable polymer composition according to claim 4, wherein polymer (A) is prepared from polymerized vegetable oil and polyester, aliphatic diol or both.

10. The compostable and/or degradable polymer composition according to claim 4, wherein the cyclic amide is caprolactam, the cyclic ester is caprolactone, the dicarboxylic acid or ester is dimethylterephthalate and the aliphatic diol is selected from the group consisting of ethylene glycol and 1,4-butanediol.

11. The compostable and/or degradable polymer composition according to claim 4, wherein polymer (A) is prepared from the scrambling of a glycerol/diethylene glycol/adipic acid crosspolymer with nylon-6.

12. The compostable and/or degradable polymer composition according to claim 4, wherein polymer (A) is prepared from glycerol, diethylene glycol, adipic acid and caprolactam.

13. The compostable and/or degradable polymer composition according to claim 10, wherein caprolactam is 20-90 wt%, caprolactone is 0-40 wt%; dimethylterephthalate is 5-40 wt%, and ethylene glycol is 5-40 wt%.

14. The compostable and/or degradable polymer composition according to claim 4, wherein the dicarboxylic acid is selected from Formula I:

$$HOOC-(CH_2)_n-COOH \qquad (I)$$

where n is a whole number ranging from 2 to 6.

15. The compostable and/or degradable polymer composition according to claim 4, wherein the aliphatic diol is selected from Formula II:

$$HO-(CH_2)_n-OH \qquad (II)$$

where n is a whole number ranging from 2 to 6.

16. The compostable and/or degradable polymer composition according to claim 4, wherein the cyclic amide is caprolactam.

17. The compostable and/or degradable polymer composition according to claim 4, wherein the aliphatic polyamide is selected from the group consisting of nylon-66 and polycaprolactam.

18. The compostable and/or degradable polymer composition according to claim 4, wherein the cyclic ester is selected from the group consisting of caprolactone and 3,6-dimethyl-1,4-dioxane-2,5-dione.

19. The compostable and/or degradable polymer composition according to claim 4, wherein the aliphatic diamine is selected from Formula III:

$$H_2N-(CH_2)_n-NH_2 \qquad (III)$$

where n is a whole number ranging from 2 to 6.

20. The compostable and/or degradable polymer composition according to claim 4, wherein the aminocarboxylic acid is selected from Formula IV:

$$H_2N-(CH_2)_n-COOH \qquad (IV)$$

where n is a whole number ranging from 2 to 6.

21. The compostable and/or degradable polymer composition according to claim 4, wherein the hydroxycarboxylic acid is selected from Formula V:

$$HO-(CR_2)_n-COOH \qquad (V)$$

where n is a whole number ranging from 2 to 6 and R is selected from the group consisting of hydrogen, methyl and ethyl.

22. The compostable and/or degradable polymer composition according to claim 4, wherein the polyester is

selected from the group consisting of polycaprolactone and polylactic acid.

23. The compostable and/or degradable polymer composition according to claim 1, further comprising a polyketone, polyurethane, polylactic acid, starch, polyethylene glycol or mixtures thereof.

24. The compostable and/or degradable polymer composition according to claim 1, wherein polymer (B) is a polyester selected from the group consisting of polylactic acid, polyhydroxyalkanoate, polyhydroxybutyrate, polyhydroxy-valerate, Biopol, polycaprolactone, polyethylene adipate, polyethylene succinate, polybutylene succinate, polyglycolic acid and copolymers and combinations thereof.

25. The compostable and/or degradable polymer composition according to claim 1, which includes polymer (A), polymer (B), and component (D).

26. The compostable and/or degradable polymer composition according to claim 25, wherein polymer (A) is a caprolactam/caprolactone copolymer or a caprolactam/lactic acid copolymer, polymer (B) is PVOH or EVOH.

27. The compostable and/or degradable polymer composition according to claim 1, further comprising a degrading aid.

28. The compostable and/or degradable polymer composition according to claim 27, wherein the degrading aid

is selected from the group consisting of ammonium polyphosphate and zinc pyrophosphate.

29. The compostable and/or degradable polymer composition according to claim 27, wherein the degrading aid is in a range of 0.1 - 5 wt%.

30. The compostable and/or degradable polymer composition according to claim 1, further comprising component (D) which is a crosslinking agent.

31. The compostable and/or degradable polymer composition according to claim 30, wherein the crosslinking agent is selected from the group consisting of a triamine, triol, jeffamine, polyethyleneimine, multifunctional amines, glycerol, sorbitol, EVOH, PVOH, triaminopyrimidines, tetraazacyclo-tetradecane, tricarboxylic acid or ester, tetracarboxylic acid or ester, methylene bis(4-phenyl isocyanate), vinyltrimethoxysilane, diethylene glycol diglycidyl ether, epichlorohydrin, 1,1,3,3,5,5,7,7,9,9,11,11-dodecamethyl-1,11-bis(4-(oxiranylmethoxy)phenyl)-Hexasiloxane, 3-(trimethoxysilyl)-1-Propanamine, zinc pyrophosphate, zinc oxide and mixtures thereof.

32. The compostable and/or degradable polymer composition according to claim 30, wherein the crosslinking agent is selected from the group consisting of

3,3-dimethoxy-7,9-dimethyl-7-((nonamethyltetra-siloxanyl)oxy))-9-((trimethylsilyl)oxy)-2,8,13-trioxa-3,7,9-trisilapentadecan-15-ol;

1,1,1,3,3,5,5,7,7,9,11,13,15,17,19,19,

19-heptadecamethyl-9,11,13,15,17-pentakis(2-(7-oxabicyclo(4.1.0)hept-3-yl)ethyl)-decasiloxane;

poly(oxy(1,1,3,3,5,5,7,7-octamethyl-1,7-tetrasiloxane-diyl)oxy-1,3-phenylene(phenylimino)(1,1'-biphenyl)-4,4'-diyl(phenylimino)-1,3-phenylene);

1,1,3,3,5,5,7,7-octamethyl-1,7-tetrasiloxanediol diacetate;

alpha-(nonamethyltetrasiloxanyl)-omega-((trimethylsilyl)oxy)-poly(oxy(((diethylamino)oxy)methylsilylene));

dodecamethyl pentasiloxane;

alpha-(nonamethyltetrasiloxanyl)-omega-((trimethylsilyl)oxy)-poly(oxy(((diethylamino)oxy)methylsilylene)),;

1,1,3,3,5,5,7,7,9,9-decamethyl-1,9-pentasiloxanediol;

1,1,3,3,5,5,7,7,9,9-decamethyl-1,9-bis(4-(oxiranylmethoxy)phenyl)-pentasiloxane;

1,1,3,3,5,5,7,7,9,9,11,11-dodecamethyl-1,11-bis(4-(oxiranylmethoxy)phenyl)-hexasiloxane;

1,1,3,3,5,5,7,7,9,9,11,11,13,13,15,15-hexadecamethyl-1,15-bis(4-(oxiranylmethoxy)phenyl)-octasiloxane;

1,1,3,3,5,5,7,7,9,9,11,11,13,13,15,15,17,17-octadecamethyl-1,17-bis(4-(oxiranylmethoxy)phenyl)-nonasiloxane;

1,1,3,3,5,5,7,7,9,9,11,11,13,13,15,15,17,17,19,19,21,21,23,23-tetracosamethyl-1,23-bis(4-(oxiranylmethoxy)phenyl)-dodecasiloxane;

4,4'-(1,1,3,3,5,5,7,7,9,9-decamethyl-1,9-pentasiloxanediyl)bis-phenol;

4,4'-(1,1,3,3,5,5,7,7,9,9,11,11-dodecamethyl-1,11-hexasiloxanediyl)bis-phenol;

4,4'-(1,1,3,3,5,5,7,7,9,9,11,11,13,13,15,15-hexadecamethyl-1,15-octasiloxanediyl)bis-phenol;

4,4'-(1,1,3,3,5,5,7,7,9,9,11,11,13,13,15,15,17,17-octadecamethyl-1,17-nonasiloxanediyl)bis-phenol;

4,4'-(1,1,3,3,5,5,7,7,9,9,11,11,13,13,15,15,17,17,19,19,21,21,23,23-tetracosamethyl-1,23-dodecasiloxane-diyl)bis-phenol;

1,1,3,3,5,5,7,7-octamethyl-1,7,-tetrasiloxanediol;

1-ethenyl-1,3,3,5,5,7,7-heptamethyl-1,7-tetrasiloxane-diol;

1,1,3,3,5,5-hexamethyl-7,7-diphenyl-1,7-tetrasiloxane-diol;

1,1,3,3,5,5,7-heptamethyl-7-(3,3,3-trifluoropropyl)-1,7-tetrasiloxanediol;

1,1,3,3,5,5,7-heptamethyl-7-phenyl-1,7-tetrasiloxane-diol;

N,N'-(1,1,3,3,5,5,7,7,9,9,11,11-dodecamethyl-1,11-hexasiloxanediyl)di-3,1-propanediyl)bis(N-(oxiranylmethyl)-oxiranemethanamine;

1,1,3,3,5,5,7,7,9,9,11,11,13,13,15,15,17,17,19,19-eicosamethyl-1,19-bis(4-(methyl-1-(4-oxiranylmethoxy)phenyl)ethyl)phenoxy)-decasiloxane; and

1,1,3,3,5,5-hexamethyl-1,5-bis(4-(1-methyl-1-(4-(oxiranylmethoxy)phenyl)ethyl)phenoxy)-trisiloxane.

33. The compostable and/or degradable polymer composition according to claim 31, wherein the crosslinking agent is selected from the group consisting of zinc pyrophosphate, zinc oxide and mixtures thereof.

34. The compostable and/or degradable polymer composition according to claim 30, wherein the crosslinking agent is incorporated at a level of 0.0 to 2.0 wt percent.

35. The compostable and/or degradable polymer composition according to claim 1, further comprising component (E) which is a polymer end-capped with functional groups.

36. The compostable and/or degradable polymer composition according to claim 35, wherein component (E) is selected from the group consisting of polyether diol, polysilylalcohol, polyesteramidepolyols, polyurethane-polyols, hydroxylated acrylate resins, polyester diols, aminopropyl-terminated polyethylene glycol, aminopropyl-terminated polypropylene glycol, end-capped methacrylate functionalized polyethyleneglycol and epichlorohydrin derivatized polyethylene glycol.

37. The compostable and/or degradable polymer composition according to claim 35, wherein the polyether diol is selected from the group consisting of polyethylene glycol, polyethylene ether glycol, polypropylene ether glycol, polytetramethylene ether glycol, polyhexamethylene ether glycol.

38. The compostable and/or degradable polymer composition according to claim 35, wherein component (E) has a molecular weight of 600 to 4000 dalton.

39. The compostable and/or degradable polymer composition, according to claim 1, having a spherulitic form wherein the spherulites average particle diameter ranges from 100-500 μm.

40. The compostable and/or degradable polymer composition, according to claim 1, where in polymer (B) is in a range of 1 to 60 wt% of the total composition and is selected from the group consisting of starch, starch derivative, cellulose, chitin, amylose, amylopectin and mixtures thereof.

41. The compostable and/or degradable polymer composition according to claim 1, wherein polymer (A) is prepared from caprolactam and caprolactone and polymer (B) is polyvinyl alcohol.

42. The compostable and/or degradable polymer composition according to claim 1, wherein the plasticizer component (C) is selected from the group consisting of polyethylene glycol, polypropylene glycol, polyethylene propylene glycol, glycerol, butenediol, propylene glycol, sorbitol, glycerol triacetate, methyl ricinolate, dihexyl phthalate, low molecular weight polycaprolactone diol or triol, acetyl-tri-n-butyl citrate, and combinations thereof.

43. A method for preparing a compostable and/or degradable polymer composition, comprising combining polymer (A) which is a polyesteramide copolymer with at least one of polymer (B) and component (D);

wherein polymer (B) which is at least one polymer selected from the group consisting of polyethylenevinyl alcohol, polyvinyl alcohol, polyester, starch, starch derivative, cellulose, polyethylene glycol, chitin, amylose, amylopectin, starch derivatized with ethyleneimine, cellulose derivatized with ethyleneimine, polysaccharides derivatized with ethyleneimine, lignin derivatized with

ethyleneimine, farinaceous materials derivatized with ethyleneimine and mixtures thereof;

component (D) which is a crosslinking agent;

in an amount necessary to have up to 60 wt% of polymer (B) and up to 5 wt% of component (D);

wherein all wt% values are based upon the total weight of the polymer composition.

44. The method for preparing a compostable and/or degradable polymer composition according to claim 43, further comprising the step of preparing polymer (A) by combining at least one of the following sets of reactants:

i) cyclic amide, dicarboxylic acid or ester and aliphatic diol;

ii) aliphatic polyamide and a cyclic ester, a diol or both;

iii) aliphatic diamine, dicarboxylic acid or ester and aliphatic diol;

iv) cyclic amide, dicarboxylic acid or ester, tricarboylic acid or ester, and aliphatic diol;

v) cyclic amide and cyclic ester;

vi) aminocarboxylic acid, dicarboxylic acid or ester and aliphatic diol;

vii) aliphatic diamine and/or triamine, aliphatic diol, dicarboxylic acid or ester and cyclic amide;

viii) aliphatic polyamide and polyester;

ix) polymerized vegetable oil and polyester, aliphatic diol or both;

x) aliphatic diamine and aliphatic diol;

xi) cyclic amide, aminocarboxylic acid, and hydroxycarboxylic acid

xii) cyclic amide and hydroxycarboxylic acid;

xiii) aliphatic polyamide and hydroxycarboxylic acid;

xiv) cyclic amide, cyclic ester, dicarboxylic acid or ester and aliphatic diol;

xv) a triol/diol/aliphatic dicarboxylic acid crosspolymer and a polyamide; and

xvi) triol, diol, aliphatic dicarboxylic acid and a cyclic amide.

45. The method for preparing a compostable and/or degradable polymer composition according to claim 43, wherein polymer (A) is prepared by melting an aliphatic polyamide and blending at least one hydroxycarboxylic acid selected from Formula V:

$$HO-(CR_2)_n-COOH \qquad (V)$$

where n is a whole number ranging from 2 to 6 and R is selected from the group consisting of hydrogen, methyl and ethyl.

46. The method for preparing a compostable and/or degradable polymer composition according to claim 43, wherein polymer (A) is prepared by melting an aliphatic polyamide and either a polyester or cyclic ester together and mixing for greater than one minute in the melt.

47. The method for preparing a compostable and/or degradable polymer composition according to claim 43, wherein the preparation of polymer (A) further comprises adding tin octoate to the melted mixture.

48. The method for preparing a compostable and/or degradable polymer composition according to claim 43, wherein polymer (A) is prepared by combining a cyclic amide, a cyclic ester, and an anionic catalyst.

49. The method for preparing a compostable and/or degradable polymer composition according to claim 48, wherein the cyclic amide ranges from 90 wt% to 20 wt% and the cyclic ester ranges from 10 wt% and 80 wt%.

50. The method for preparing a compostable and/or degradable polymer composition according to claim 48, wherein the anionic catalyst varies between 20-5,000 ppm.

51. The method for preparing a compostable and/or degradable polymer composition according to claim 48, wherein the anionic catalyst is sodium methoxide and/or the sodium salt of caprolactam.

52. The method for preparing a compostable and/or degradable polymer composition according to claim 43, wherein polymer (A) is prepared by combining a cyclic amide, a cyclic ester, and water.

53. The method for preparing a compostable and/or degradable polymer composition according to claim 52, wherein the cyclic amide ranges from 98 wt% to 20 wt% and the cyclic ester ranges from 2 wt% and 80 wt%.

54. The method for preparing a compostable and/or degradable polymer composition according to claim 52, wherein the amount of water ranges from 1-3 wt%.

55. The method for preparing a compostable and/or degradable polymer composition according to claim 43, which includes a crosslinking agent.

56. The method for preparing a compostable and/or degradable polymer composition according to claim 55, wherein the crosslinking agent is selected from the group consisting of a triamine, triol, jeffamine, polyethyleneimine, multifunctional amines, glycerol, sorbitol, EVOH, PVOH, triaminopyrimidines, tetraazacyclo-tetradecane, tricarboxylic acid or ester, tetracarboxylic acid or ester, methylene bis(4-phenyl isocyanate), vinyltrimethoxysilane, diethylene glycol diglycidyl ether, epichlorohydrin, 1,1,3,3,5,5,7,7,9,9,11,11-dodecamethyl-1,11-bis(4-(oxiranylmethoxy)phenyl)-Hexasiloxane, 3-(trimethoxysilyl)-1-Propanamine, zinc pyrophosphate, zinc oxide and mixtures thereof.

57. The method for preparing a compostable and/or degradable polymer composition according to claim 55, wherein the crosslinking agent is selected from the group consisting of 3,3-dimethoxy-7,9-dimethyl-7-((nonamethyltetrasiloxanyl)oxy))-9-((trimethylsilyl)oxy)-2,8,13-Trioxa-3,7,9-trisilapentadecan-15-ol; 1,1,1,3,3,5,5,7,7,9,11,13,15,17,19,19,19-heptadecamethyl-9,11,13,15,17-pentakis(2-(7-oxabicyclo(4.1.0)hept-3-yl)ethyl)Decasiloxane,; Poly(oxy(1,1,3,3,5,5,7,7-octamethyl-1,7-tetrasiloxanediyl)oxy-1,3-phenylene(phenylimino)(1,1'-biphenyl)-4,4'-diyl(phenylimino)-1,3-phenylene); 1,1,3,3,5,5,7,7-octamethyl-1,7-Tetrasiloxanediol, diacetate;α-(nonamethyltetrasiloxanyl)-γ-

((trimethylsilyl)oxy)-
poly(oxy(((diethylamino)oxy)methylsilylene)); dodecamethyl-
pentasiloxane; α-(nonamethyltetrasiloxanyl)-γ-
((trimethylsilyl)oxy)-
poly(oxy(((diethylamino)oxy)methylsilylene));
1,1,3,3,5,5,7,7,9,9-decamethyl-1,9-pentasiloxanediol;
1,1,3,3,5,5,7,7,9,9-decamethyl-1,9-bis(4-
(oxiranylmethoxy)phenyl)-pentasiloxane;
1,1,3,3,5,5,7,7,9,9,11,11-dodecamethyl-1,11-bis(4-
(oxiranylmethoxy)phenyl)-hexasiloxane;
1,1,3,3,5,5,7,7,9,9,11,11,13,13,15,15-hexadecamethyl-1,15-
bis(4-(oxiranylmethoxy)phenyl)-octasiloxane;
1,1,3,3,5,5,7,7,9,9,11,11,13,13,15,15,17,17-octadecamethyl-
1,17-bis(4-(oxiranylmethoxy)phenyl)-nonasiloxane;
1,1;3,3,5,5,7,7,9,9,11,11,13,13,15,15,17,17,19,19,21,21,23,2
3-tetracosamethyl-1,23-bis(4-(oxiranylmethoxy)phenyl)-
dodecasiloxane; 4,4'-(1,1,3,3,5,5,7,7,9,9-decamethyl-1,9-
pentasiloxanediyl)bis-phenol; 4,4'-
(1,1,3,3,5,5,7,7,9,9,11,11-dodecamethyl-1,11-
hexasiloxanediyl)bis-phenol; 4,4'-
(1,1,3,3,5,5,7,7,9,9,11,11,13,13,15,19-hexadecamethyl-1,15-
octasiloxanediyl)bis-phenol; 4,4'-
(1,1,3,3,5,5,7,7,9,9,11,11,13,13,15,15,17,17-octadecamethyl-
1,17-nonasiloxanediyl)bis-phenol; 4,4'-
(1,1,3,3,5,5,7,7,9,9,11,11,13,13,15,15,17,17,19,19,21,21,23,
23-tetracosamethyl-1,23-dodecasiloxanediyl)bis-phenol;
1,1,3,3,5,5,7,7-octamethyl-1,7,-tetrasiloxanediol; 1-
ethenyl-1,3,3,5,5,7,7-heptamethyl-1,7-tetrasiloxanediol;
1,1,3,3,5,5-hexamethyl-7,7-diphenyl-1,7-tetrasiloxanediol;
1,1,3,3,5,5,7-heptamethyl-7-(3,3,3-trifluoropropyl)-1,7-
tetrasiloxanediol; 1,1,3,3,5,5,7-heptamethyl-7-phenyl-1,7-
tetrasiloxanediol;

N,N'-(1,1,3,3,5,5,7,7,9,9,11,11-dodecamethyl-1,11-hexasiloxanediyl)di-3,1-propanediyl)bis(N-(oxiranylmethyl)-oxiranemethanamine;
1,1,3,3,5,5,7,7,9,9,11,11,13,13,15,15,17,17,19,19-eicosamethyl-1,19-bis(4-(methyl-1-(4-oxiranylmethoxy)phenyl)ethyl)phenoxy)-decasiloxane; and
1,1,3,3,5,5-hexamethyl-1,5-bis(4-(1-methyl-1-(4-(oxiranylmethoxy)phenyl) ethyl)phenoxy)-trisiloxane.

58. The method for preparing a compostable and/or degradable polymer composition according to claim 56, wherein the crosslinking agent is selected from the group consisting of zinc pyrophosphate, zinc oxide and mixtures thereof.

59. The method for preparing a compostable and/or degradable polymer composition according to claim 55, wherein the crosslinking agent is incorporated at a level of 0.0 to 2.0 weight percent.

60. The method for preparing a compostable and/or degradable polymer composition according to claim 43, further comprising component (E) which is a polymer end-capped with functional groups.

61. The method for preparing a compostable and/or degradable polymer composition according to claim 60, wherein component (E) is selected from the group consisting of polyether diol, polysilylalcohol, polyesteramidepolyols, polyurethanepolyols, hydroxylated acrylate resins, polyester diols, aminopropyl-terminated polyethylene glycol, aminopropyl-terminated polypropylene glycol, end-capped

methacrylate functionalized polyethyleneglycol and epichlorohydrin derivatized polyethylene glycol.

62. The method for preparing a compostable and/or degradable polymer composition according to claim 61, wherein the polyether diol is selected from the group consisting of polyethylene glycol, polyethylene ether glycol, polypropylene ether glycol, polytetramethylene ether glycol, polyhexamethylene ether glycol,.

63. The method for preparing a compostable and/or degradable polymer composition according to claim 62, wherein component (E) has a molecular weight of 600 to 4000 dalton.

64. The method for preparing a compostable and/or degradable polymer composition according to claim 43, wherein polymer (B) is a polylactic acid in a range of 1 to 60 wt% of the total composition.

65. The method for preparing a compostable and/or degradable polymer composition according to claim 43, wherein polymer (B) is a polyhydroxyalkanoate in a range of 1 to 60 wt% of the total composition.

66. The method for preparing a compostable and/or degradable polymer composition according to claim 43, wherein polymer (B) is in a range of 1 to 60 wt% of the total composition and is selected from the group consisting of starch, starch derivative, cellulose, chitin, amylose, amylopectin and mixtures thereof.

67. The method for preparing a compostable and/or degradable polymer composition according to claim 43, wherein polymer (A) is polycaprolactam and polymer (B) is polyvinyl alcohol.

68. The method for preparing a compostable and/or degradable polymer composition according to claim 43, wherein the cyclic amide is caprolactam, the cyclic ester is caprolactone, the dicarboxylic acid or ester is dimethylterephthalate and the aliphatic diol is selected from the group consisting of ethylene glycol and 1,4-butanediol.

69. The method for preparing a compostable and/or degradable polymer composition according to claim 62, wherein caprolactam is 20-90 wt%, caprolactone is 0-40 wt%; dimethylterephthalate is 5-40 wt%, and ethylene glycol is 5-40 wt%.

70. A compostable, degradable film comprising the polymer composition of claim 1.

71. A compostable, degradable injection molded article comprising the polymer composition of claim 1.

72. A degradable monofilament comprising the polymer composition of claim 1.

73. A compostable, degradable fiber comprising the polymer composition of claim 1.

74. A disposable article comprising the polymer composition of claim 1.

75. A compostable, degradable manufactured article comprising the polymer composition of claim 1.

76. A compostable, degradable manufactured article according to claim 75 which is in the form of a sphere having a diameter of between 1 micron and 50 cm and a skin thickness ranging from 0.01 micron to 2.0 mm.

77. A method for preparing a compostable and/or degradeable sphere comprising forming a film of the compostable and/or degradable polymer composition according to claim 1 across an orifice, applying a blowing fluid at a positive pressure on an inner surface of the film and blowing the film to expand the film through the orifice and applying an external pulsating or fluctuating pressure field having periodic oscillations on an outer surface of the blown film, and detaching the sphere from said orifice.

78. The method according to claim 77, wherein the film of the compostable and/or degradable polymer composition has a viscosity of 0.10 to 600 poises.

79. The method according to claim 77, wherein the film of the compostable and/or degradable polymer composition has a viscosity of 0.5 to 100 poises.

80. The method according to claim 77, wherein the film of the compostable and/or degradable polymer composition has a viscosity of 100 to 400 poises.

81. The method according to claim 77, wherein the blowing fluid is a gas at a pressure of less than 500 p.s.i.g.

82. The method according to claim 77, wherein said blowing fluid is a solution containing an organic compound or salt thereof.

83. The method according to claim 77, wherein the blowing fluid is an organic compound or salt thereof in the melt phase.

84. The method according to claim 83, wherein said blowing fluid is a polymer in the melt phase.

85. The method according to claim 77 wherein said blowing fluid blows said film downwardly through the orifice and outwardly to form an elongated cylinder shaped liquid film which closes at the orifice.

86. The method according to claim 77, wherein said orifice is on a coaxial nozzle having an orifice, an inner nozzle and an outer nozzle and the external pulsating or fluctuating pressure field having periodic oscillations is caused by an entraining fluid, the film is formed across the orifice of the outer nozzle, the blowing gas is conveyed to the inner surface of the film through said inner nozzle, the entraining fluid passes over and around said coaxial nozzle to dynamically induce separation of the sphere from the coaxial nozzle.

87. The method according to claim 77, wherein the film of the compostable and/or degradable polymer composition becomes isotropically oriented during formation of the sphere.

88. The method according to claim 77, wherein the sphere ranges in size from 1.0 micron to 50 cm in diameter.

89. The method according to claim 87, wherein the polymer is oriented isotropically by expanding the film between the glass transition temperature and the melting temperature.

90. A compostable and/or degradable sphere prepared by the method of claim 88.

91. The compostable and/or degradable sphere according to claim 90, wherein the compostable and/or degradable polymer is prepared by combining 3-8 weight% of a polyesteramide consisting of 20-40% ester units and having a melting point of less than 190 °C with 92-97 weight% of undried starch.

92. The compostable and/or degradable sphere according to claim 90, wherein the compostable and/or degradable polymer is prepared by combining 40-70 weight% of a polyesteramide consisting of 2-80% ester units with 30-60 weight% of polyvinylalcohol and/or polyethylenevinyl alcohol, and wherein the sphere has a diameter of 2.0-6.0 cm.

93. A method of strengthening paper comprising coating the paper with the compostable and/or degradable sphere of claim 90.

94. A method of strengthening paper comprising coating the paper with a sphere composed of polyethylene, polypropylene, or polylactic acid.

95. The compostable and/or degradable polymer composition according to claim 1, further comprising at least one of sugar, peanut butter or soybean oil to attract insects.

96. A compostable and/or degradable polymer composition, comprising:

polylactic acid;

polymer (B) which is at least one polymer selected from the group consisting of polyethylenevinyl alcohol, polyvinyl alcohol, polyester, starch, starch derivative, cellulose, polyethylene glycol, chitin, amylose, amylopectin, starch derivatized with ethyleneimine, cellulose derivatized with ethyleneimine, polysaccharides derivatized with ethyleneimine, lignin derivatized with ethyleneimine, farinaceous materials derivatized with ethyleneimine and mixtures thereof;

component (C) which is a plasticizer; and

component (D) which is a crosslinking agent;

wherein the polymer composition comprises 0 to 60 wt% of polymer (B), 0 to 25 wt% of component (C), and 0 to 5 wt% of component (D);

wherein all wt% values are based upon the total weight of the polymer composition; and

with the proviso that the polymer composition must contain at least one of polymer (B) and component (D).